

Applicant: Eesley et al.
Serial No.: 09/804,756
Art Unit:3743

REMARKS

Claims 1-7 and 21-28 remain in the Application with claim 1 in independent form. Claims 8-20 have been cancelled. Claims 1, 6, and 7 have been amended. No new matter has been introduced in any of the amendments.

Claims 1-7 and 21-28 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16 of United States Patent No. 6,424,529 and over claims 1-19 of United States Patent No. 6,424,531. Applicant submits herewith a terminal disclaimer to obviate the double patenting rejection and the fee required under 37 C.F.R. §1.20(d). Therefore, Applicant believes the provisional double patenting rejection is overcome.

Claims 1, 2, 5, and 21-28 stand rejected under 35 U.S.C. §102(b) as being anticipated by Kuzay (United States Patent No. 5,123,982). The Examiner states that Kuzay discloses a heat spreader plate 20, at least two conducting fins positioned substantially parallel to one another and connected substantially perpendicular to the heat spreader plate, and at least one foam block 12 disposed between the fins. Claims 6 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kuzay in view of Elwell (United States Patent No. 5,315,154). The Examiner contends that Kuzay discloses the claimed invention with the exception of providing a heat spreader plate, fins, and at least one foam block that is made from aluminum. The Examiner further contends that Elwell discloses a heat spreader plate, fins, and at least one foam block that is made from aluminum and that it would have been obvious to modify Kuzay.

Applicant has amended claim 1 to include the limitation that the at least one foam block be made from aluminum, copper, graphite, or aluminum-nitride ceramic of Claim 6. Kuzay does not teach, suggest, or disclose forming the foam block from aluminum, copper, graphite, or aluminum-nitride ceramic. Moreover, Kuzay is directed toward a foam material having large thermal conductivities at cryogenic temperatures including beryllium (Be), silicon (Si), silicon carbide (SiC), and beryllium oxide (beryllia) and does not disclose aluminum, copper, graphite, or aluminum-nitride ceramic. Accordingly, the 35 U.S.C. §102(b) rejection is overcome and claim 1 is deemed allowable. Further, claims 2-7 and 21-28 depend from claim 1 and are also deemed allowable.

The Examiner has rejected the limitation in claim 6 and Applicant respectfully traverses because a prima facie case of obviousness has not been established. To

Applicant: Eesley et al.
Serial No.: 09/804,756
Art Unit:3743

establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not be based on Applicant's disclosure. In re Vaack, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP §2143 - §2143.03.

As discussed above, Kuzay is directed toward a method for constructing a cooled optic wherein one or more cavities are milled, drilled or formed using casting or ultrasound laser machining techniques in a base crystal and filled with a porous material having high thermal conductivity at cryogenic temperatures. During operation of the cooled optic, liquid nitrogen is pumped through the porous material at a sub-cooled cryogenic inlet temperature and with sufficient system pressure to prevent the fluid bulk temperature from reaching saturation. Referring to column 3, lines 6-9, the base crystal is used in the range of from 0 to 150 degrees K, or -273.15 to -123.15 degrees C. Moreover, the foam is selected from beryllium (Be), silicon (Si), silicon carbide (SiC), and beryllium oxide (beryllia).

The electronic assembly of Elwell includes a heat spreader plate 12, at least two heat conducting fins 12b, and the heat absorbing material 16. Elwell also discloses that the heat absorbing material 16 is a solid phase change material or PCM 16. Throughout the entire specification of Elwell, the PCM is disclosed as a solid polyhydric alcohol such as neopentyl glycol, trimethylol ethane, and pentaerythritol. Polyhydric alcohols are better known in the art as polyols.

The Examiner has failed to provide any suggestion or motivation to combine Kuzay with Elwell. As further clarified by the Court in *In re Sang Su Lee*, 277 F.3d 1338 (Fed. Cir. 2002), citing *Brown & Williamson Tobacco Corp. v. Phillip Morris, Inc.*, 229 F.3d 1120, 1124-25 (Fed. Cir. 2000), for a rejection of a claim under 35 U.S.C. § 103(a), it is required that there be some teaching or motivation found within the references themselves that would lead one of ordinary skill in the art to combine the references and, furthermore, that once combined the references must either disclose each and every limitation of the claim

Applicant: Eesley et al.
Serial No.: 09/804,756
Art Unit:3743

or make obvious any such limitations not disclosed. Referring to Elwell, Figure 3 and column 3, lines 12-14, the heat sink is designed to dissipate heat for circuit chips in the range of 50 degrees C to 250 degrees C. There is no suggestion or motivation to combine the cryogenic apparatus of Kuzay with the electronic heat dissipation assembly of Elwell.

Further, even if such a suggestion or motivation can be found, combining Kuzay with Elwell does not provide a reasonable expectation of success. As set forth above, Kuzay operates at cryogenic temperatures in the range of -273.15 to -123.15 degrees C. Whereas, Elwell operates at temperature in the range of 50 degrees C to 250 degrees C. This is a difference between the maximum temperature of Kuzay and lowest temperature of Elwell of 173.15 degrees C. The foam of Elwell would not operate at the cryogenic temperatures of Kuzay. Therefore, one of ordinary skill in the art would reasonably expect that the combination would not succeed.

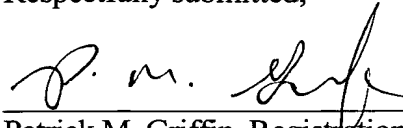
Finally, each and every limitation is not taught, disclosed or suggested by references when combined. Claim 1, as amended, requires the foam be formed from aluminum, copper, graphite, or aluminum-nitride ceramic. Kuzay nor Elwell, when combined or individually, disclose, teach, or suggest the heat sink as claimed. Specifically, Kuzay and Elwell do not disclose, teach, or suggest a foam block that is formed of reticulated foam to define a highly porous, heat conducting, open-celled structure that is formed from aluminum, copper, graphite, or aluminum-nitride ceramic. The PCM disclosed in Elwell is clearly not a foam block and is clearly not formed of reticulated foam formed from aluminum, copper, graphite, or aluminum-nitride ceramic. In fact, the '154 patent to Elwell never even uses the word "foam" at all. Therefore, the 35 U.S.C. §103 rejection is overcome and claim 1 is allowable. Claims 2-7 and 21-28 depend from allowable claim 1 and are also deemed allowable.

Applicant: Eesley et al.
Serial No.: 09/804,756
Art Unit:3743

Accordingly, it is respectfully submitted that the Application, as amended, is now presented in condition for allowance, which allowance is respectfully solicited. Applicant believes that no fees are due, however, if any become required, the Commissioner is hereby authorized to charge any additional fees or credit any overpayments to Deposit Account 50-0831. Further and favorable reconsideration of the outstanding Office Action is hereby requested.

Respectfully submitted,

Date: 9-26-03




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Applicant: Eesley et al.
Serial No.: 09/804,756
Art Unit:3743

CERTIFICATE OF MAILING

I hereby certify that this **Amendment** for U.S. Serial No.: **09/804,756** filed 13-MAR-2001 is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on September 29, 2003.


BRENDA D. CHAMBERS